

**POLYSILICON BACK-GATED SOI MOSFET FOR DYNAMIC  
THRESHOLD VOLTAGE CONTROL**

ABSTRACT OF THE DISCLOSURE

- 5    A method of forming a silicon-on-insulator (SOI) metal oxide semiconductor field  
effect transistor (MOSFET) device is provided. The SOI MOSFET device includes a  
polysilicon back-gate which controls the threshold voltage of a polysilicon-containing  
front-gate. The back-gate functions as a dynamic threshold voltage control system in the  
SOI MOSFET device because it is suitable for use during circuit/system active periods  
10    and during circuit/system idle periods.